

REMARKS

In the above-noted Office Action, all pending Claims 1 – 45 were rejected for being anticipated for being anticipated by USPNo. 2,646,726 to Fogg (hereinafter Fogg). Applicants note that the rejection of all 45 claims consists of only eight lines of text, with most of the claim limitations not being addressed in any manner.

Applicants have amended Claims 1, 2, 4, 5, 11, 17, 19, 20, 22, 24, 26, 30, 32, 33, 34, 36, 37, 39, 42, 43 and 44. New Claims 46 - 55 has been added so that Claims 1 – 55 are pending in the subject application.

Applicants submitted an Information Disclosure Statement (IDS) on May 18, 2005, with receipt on May 18, 2005 being acknowledged by the Office. The subject Office Action, which issued about one month after such receipt, makes no reference to IDS. Applicants request that the Examiner acknowledge the IDS with an indication that the cited prior art has been considered.

As set forth in the subject application in some detail, the present invention addresses a serious problem in binding stacks of sheets using conventional thermal adhesive binding strips as typically applied by a desktop binding machine. Such sheets cannot always be reliably bound, with this problem being most significant when the sheets are coated. Applicants have found that, as explained starting at page 2, line 28 of the subject application, conventional "milling apparatus that grinds or mills the edge of the stack to be bound" do not provide a solution to this problem. Stacks of coated sheets which are subject to such milling and/or grinding cannot be reliably bound using conventional binding strips, this being a very serious issue in the burgeoning desktop binding field. The cited Fogg reference is an example of such unsatisfactory prior art approaches.

Claim 1 has been amended to even more clearly distinguish over the prior art. Claim 1 is directed to an apparatus for conditioning a stack that includes a "stack clamping mechanism" for securing the stack of sheets and a "piercing member configured to produce a piercing action substantially in a piercing plane". One example of such action is the reciprocating action, as shown in Fig. 9 of the subject application and designated by arrow 76. Further recited is a "positioning

mechanism" which controls relative movement of the stack clamping and the piercing member so that "the sheets of the stack pass through the piercing plane". Finally a "drive mechanism" is included "to drive the piercing member into the edge of the stack at least once for each sheet passing through the piercing plane so that the edge of the stack is conditioned substantially exclusively by said piercing action."

The Fogg reference discloses a pair of cutting heads 4 and 4, having teeth 5, as shown in Fig. VIII, with the cutting heads both being rotationally driven by shafts 7 and 7. The cutting head 4 on the left functions to trim away the bottom portion of the individual signatures of the stack 1 as shown in Fig. IV. The cutting head 4 on the right functions to cut notches 3 in the stack as shown in Figs. V and VI. Note that the spacing of the notches along the edge of the stack is due to the absence of cutting teeth 5 around about one-half the circumference of the head 4 as can be seen in Fig. X.

It is apparent that the movement of the cutting teeth 5 of Fogg is not "substantially in a piercing plane" as claimed. Rather than planar, such action is circular. As previously noted, Applicants have found that such cutting in a direction normal to the plane of the sheets does not provide satisfactory conditioning.

As noted by the Examiner, Fogg does provide for reciprocating movement of the cutting head 4. However, as noted at col. 4, line 51, the purpose of such movement is to permit the cutting head 4 which forms the notches 3 to be depressed only twice for each stack, once at each end of the stack edge so that notches will not be cut at the respective stack ends. This motion has essentially no effect on the conditioning of the stack edge, with almost all of the conditioning being performed by the rotary movement. Claim 1 has been amended to recite that the "edge of the stack is conditioned substantially exclusively by said piercing action," which, as previously noted, takes place "substantially in a piercing plane". This is the opposite of Fogg where the conditioning action takes place, not in a plane, but in a circle.

For the above reasons, it is submitted that amended Claim 1 is patentable over Fogg. Further, Applicants fail to identify any teachings in the remainder of the

cited prior art that adds to Fogg, including USPN. 4,717,236 to Dewing, the citation of which appears to be a mistake.

Claims 2 – 16 and 46 all depend, either directly or indirectly, from allowable Claim 1 and add patentably significant limitations to the claim. For example, dependent Claim 8 further adds the limitation that there are a “multiplicity” of the “piercing members” and dependent Claim 11 adds that the “drive mechanism is configured to drive each of the piercing members to the piercing position at a differing point in time.” In an apparent attempt to address this limitation, the Examiner stated that the “piercing members (5) reciprocate at different points in time (at a first point in time, the all go up, at a second point in time, the all go down, they all go up, the all go down)”. That may be true, but Claim 11 does not recite that the piercing members “all” move together at differing times, just the opposite. The claim states that “each of the piercing members” is driven to “the piercing position at a differing point in time”. Thus, these dependent claims are also believed to be allowable.

Independent amended Claim 17 is also believed to be allowable over the cited art. The claim recites a “piercing member including a piercing edge movable substantially in a piercing plane” with that piercing plane and “a region of the sheets of the stack near the edge being parallel”. Amended Claim 17 goes on to include a “drive mechanism configured to cause the piercing edge to reciprocate between a withdrawn position displaced from the stack and a piercing position contacting the stack at least once for every sheet of the stack”. As previously noted, the rotary cutting action of Fogg does not fall in a plane parallel to the sheets. Further, what reciprocating action present in Fogg occurs only twice for each stack, independent of the number of sheets of the stack.

For the above reasons, it is submitted that amended Claim 17 is also believed to be patentable over Fogg alone or in combination with any of the other cited prior art. Claims 18 – 21 and Claim 47 all depend, either directly or indirectly from allowable Claim 17 and are thus also believed to be allowable.

Amended Claim 22 is also directed to an apparatus for conditioning a stack. A "piercing member" is included "having a piercing movement substantially exclusively in a piercing plane". As previously noted, any corresponding "piercing movement" of the cutting heads 4 of Fogg fall primarily in a circle, not a plane. Thus, neither Fogg nor the other cited prior art provide the claimed "piercing movement". Accordingly, Claim 22 is believed to be patentable as are Claims 23 – 25 which depend from Claim 22 and add patentably significant limitations to the claim.

Claim 26 is directed to a method of conditioning an edge of a stack of sheets. Among other things, the method includes "periodically driving the piercing member into the edge of the stack and withdrawing the piercing element, with the direction of the drive into the edge being within ± 25 degrees of a plane of the sheets of the stack ...". Claim 26 further recites that the piercing member is moved relative to the stack "at least once for each sheet of the stack so that each sheet of the stack is pierced by the piercing member.

As previously noted, Fogg depresses the cutting heads 4 only twice for each stack being milled. Since the number of sheets in each stack greatly exceeds two, it is apparent that Fogg does not meet this claim limitation. Thus, neither Fogg alone or in combination with the other cited art render amended Claim 26 unpatentable. In that Claims 27 – 29 depend from allowable Claim 26 and add patentably distinct limitations to the claim, these dependent claims are also believed to be allowable.

Continuing, amended Claim 30 is also directed to an apparatus for conditioning a stack of sheets. The apparatus includes a "piercing member" that produces a "piercing action in a piercing direction". A "positioning mechanism" is provided which, among other things, results in the "parallel sheet planes" of the stack being "substantially parallel to the piercing direction". A "drive mechanism" is included which is "configured to periodically drive the piercing member into the edge of the stack and away from the edge of the stack a multiplicity of times for each stack." As noted above, Fogg depresses the cutting heads 4 only twice for each stack and not a "multiplicity of times" as required by Claim 30. Thus, Claim 30 is

believed to be patentable as are Claims 31 – 36 which depend, either directly or indirectly from Claim 30 and add patentably significant limitations to the claim.

Amended Claim 37 is directed to an apparatus for conditioning a stack of sheets includes a "stack clamping apparatus" and a "piercing mechanism" that includes a "plurality of piercing members, with each of the piercing members including a piercing edge aligned along a piercing axis, with each of the piercing edges capable of reciprocating movement in a piercing direction substantially parallel with the sheet planes". Claim 37 goes on to recite a "positioning mechanism configured to control relative movement of the stack clamping mechanism and the piercing mechanism ... " and a "drive mechanism configured to periodically drive the piercing mechanism so that a longitudinal axis of the edge of the stack is disposed no greater than an acute angle with respect to the piercing axis ...".

Among other things, Fogg does not disclose the claimed "piercing mechanism including a plurality of piercing members including a piercing edge aligned along a piercing axis." The cutting teeth 5 of Fogg are arranged in a circle, and are not aligned along any axis, much less an axis disposed at an acute angle with respect to the edge of the stack. Accordingly, Claim 37 is believed to be patentable as are Claims 38 – 42 which depend, either directly or indirectly, from allowable Claim 37 and add patentably distinctive limitations to the claim.

Amended Claim 43 is directed to a method of conditioning an edge of a stack. Among other things, the method includes "providing an array of piercing members disposed along a first axis" and "periodically driving the piercing members into the edge of the stack a multiplicity of times, with the direction of drive being ± 25 degrees of a plane of the sheets of the stack". As previously noted, the cutting teeth 5 of Fogg are not aligned along an axis, much less an axis oriented as claimed. Thus, Claim 43 is allowable as are Claims 44 – 45 which depend from the claim and add patentably significant limitations to the claim.

The apparatus of new Claim 48 is also distinguishable over Fogg for various reasons. Among other things, the claimed apparatus includes a "piercing member including a plurality of piercing elements, with each of the cutting elements having a

cutting surface disposed along a common plane, with said piercing member being configured to produce a reciprocating action along a reciprocating axis, with the reciprocating axis being substantially parallel to the sheet planes". The cutting teeth 5 of Fogg are not in a common plane which is substantially parallel to the planes of the sheets. Thus, the resultant conditioning provided by Fogg is totally different than that of the present invention. Accordingly, new Claims 48 is believed to be allowable as are new dependent Claims 49 – 52 which are also believed to be allowable for that reason alone.

New Claim 53 is directed to a method of conditioning an edge of a stack, wherein a "piercing member" is "periodically" reciprocated so that the "piercing member is driven into the stack and away from the stack, with a number of the reciprocations being dependent upon the thickness of the stack". As previously noted, Fogg provides what could be considered a reciprocating movement twice for each stack of sheets, independent of the thickness of the stack. Accordingly, new Claim 53 is believed to be allowable as are Claims 54 and 55 which depend, either directly or indirectly, from Claim 53 and add patentably significant limitations to the claim.

In conclusion, all pending claims are believed to be in condition for allowance and an early allowance is respectfully requested.

Respectfully submitted,

GIRARD & EQUITZ LLP

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By: 

Philip A. Girard
Reg. No.28,848

Attorneys for Applicant(s)

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